

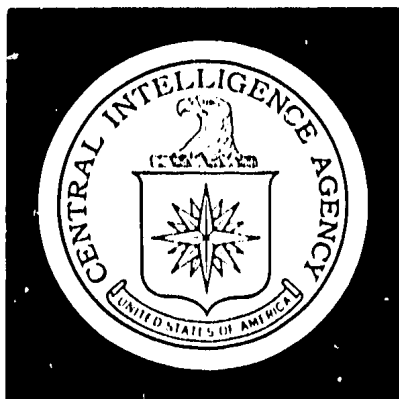
Declassified in Part - OF FLOOD DAMAGE 25V1
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DIRECTORATE OF
INTELLIGENCE

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Intelligence Memorandum

*Preliminary Appraisal Of Flood Damage
To The Romanian Economy*

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July 1970

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
July 1970

INTELLIGENCE MEMORANDUM

Preliminary Appraisal Of Flood Damage
To The Romanian Economy

Introduction

The month-long floods in Romania were the worst in the country's history. The government quickly asked for help to relieve the resulting hardship and suffering and to minimize the effect on production, especially in agriculture. The leadership was also quick to assure the Romanian people and the world at large that recovery had been rapid and to insist that the economy would go forward as planned in 1970 and 1971-75.

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The purpose of this memorandum is to examine the extent of damage and to give a preliminary assessment of the economic impact of the floods.

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Note: This memorandum was produced solely by CIA. It was prepared by the Office of Economic Research and coordinated with the Office of Current Intelligence.

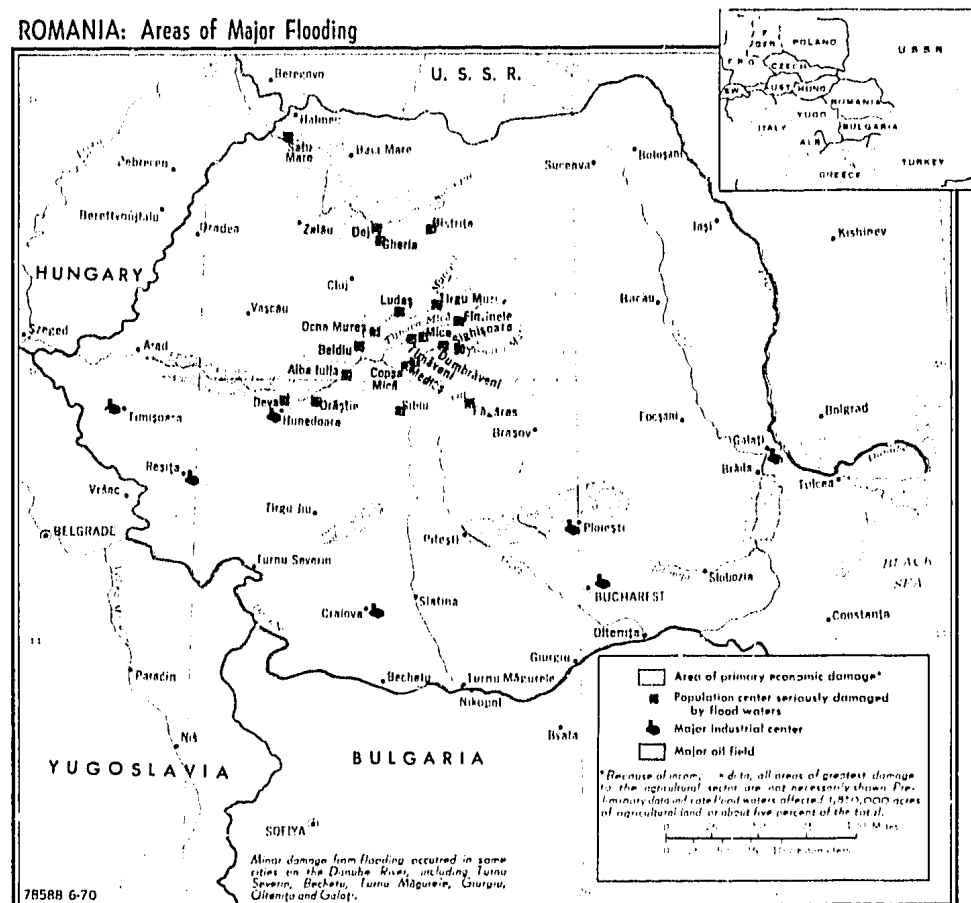
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The Floods

1. Spring flooding of lowlands is not at all unusual in Romania, a country of high mountains and many rivers. This year, however, extensive heavy rains added to the usual runoff from snows melting in the Carpathian mountains and have flooded large areas for an extended period. The most serious flooding occurred in the days following 12 May, but intermittent rains continuing through mid-June kept the water levels of rivers high, caused some areas to be inundated three or four times, and prevented replanting in much of the flooded agricultural land.

2. The heaviest flooding occurred in the north-west quadrant of the country, roughly 10,000 square miles of the area along the Mures, Someș, Tirnava Mica, and Tirnava Mare Rivers. The high waters along most of the Danube, Olt, Siret, and Prut rivers were fairly well contained. The hasty construction of new dikes and reinforcement of old ones,

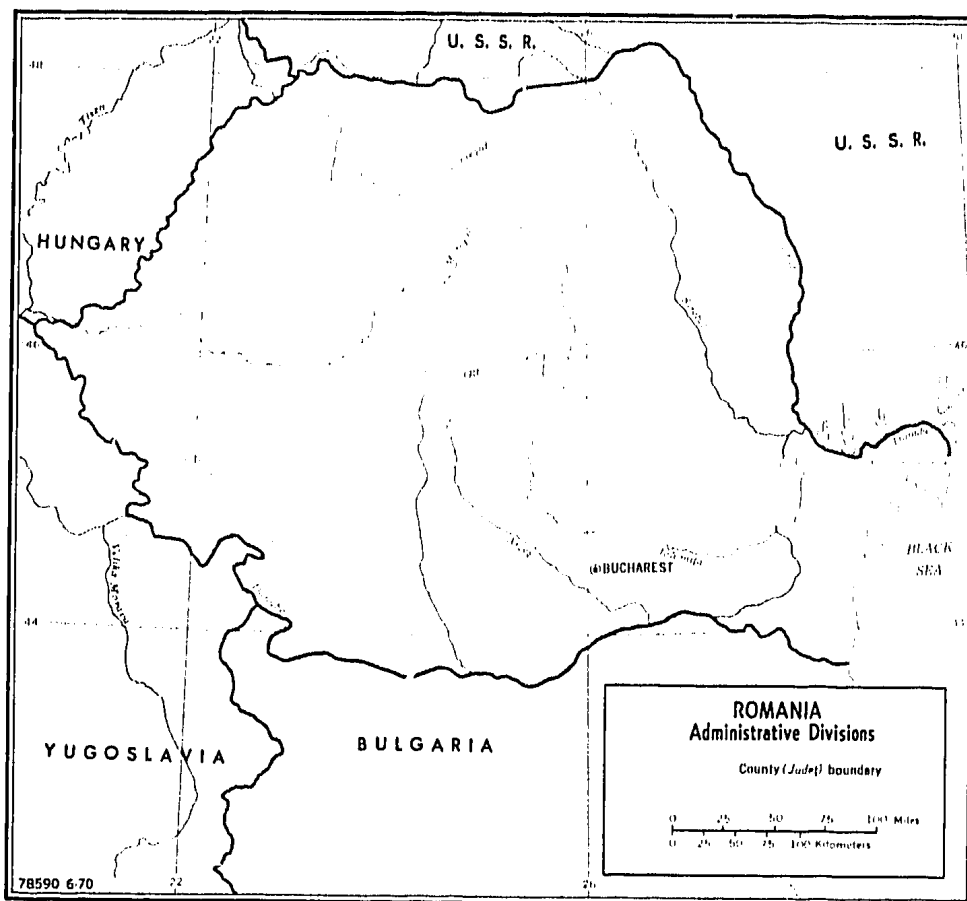
ROMANIA: Areas of Major Flooding



especially on the Danube, contributed much to the holding back of the waters from industrial areas. Several river ports and low-lying agricultural were flooded, however. Although the Danube Delta between Braila and Galati was heavily flooded, little water got into these two cities. The usual flood season along the Danube generally is between April and June, but along the rivers in northwest Romania the period may extend until September. Thus there exists the possibility of further flooding in this latter area, especially in view of high water levels currently prevailing in most rivers.

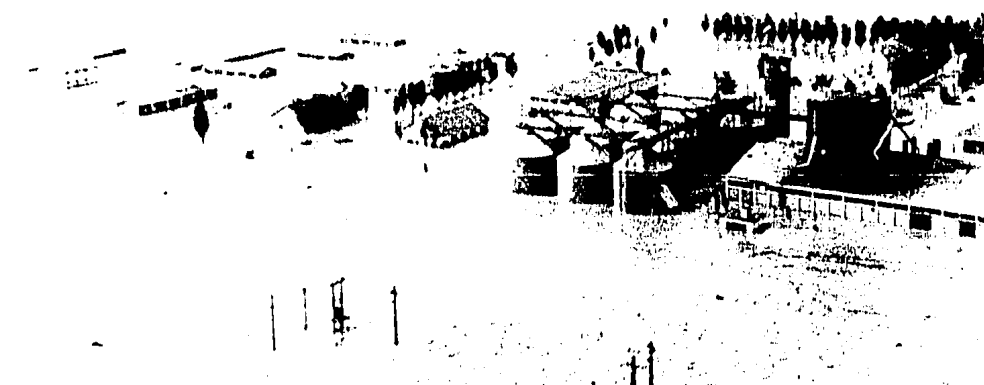
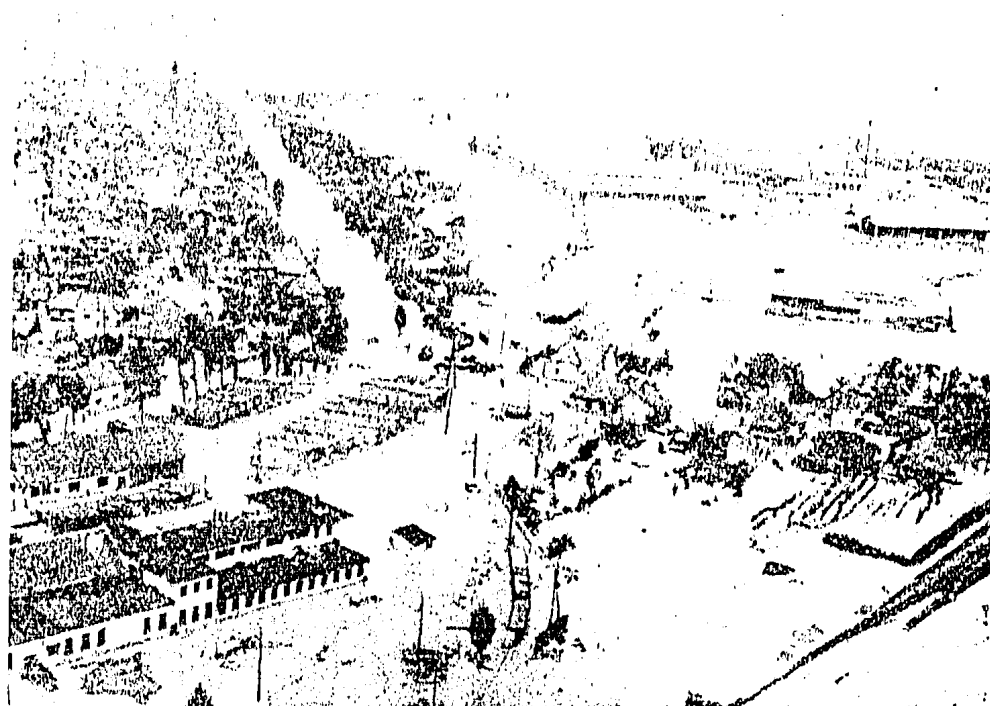
3. About 4% of the country's total area, some 2.3 million acres, was flooded. Of this area, agricultural land represented more than 1.7 million acres, of which about 1.4 million acres was cropland. A reported 162 people lost their lives and some 268,000 had to be evacuated from their homes. By 3 June, 77,000 were still homeless, and 83,000 dwelling units were flooded, of which some 41,000 were seriously damaged or destroyed. Some 19,200 buildings of other types -- including hospitals, schools, cultural establishments, and warehouses -- were flooded. Of these, about 8,100 were destroyed and 2,500 were damaged. Approximately 37,000 head of livestock and 60,000 fowl were lost. The waters reportedly inundated 270 productive units -- enterprises or plants -- 300 miles of standard-gauge railroad track, 1,400 miles of asphalted and paved roads, 1,200 miles of power lines, and 500 miles of telephone lines.*

** It may be of interest to compare the Romanian floods with past disasters in the United States. The Johnstown, Pennsylvania flood in 1889 left more than 2,000 dead. The most severe flooding in US history occurred when the Mississippi River overflowed its banks in the summer of 1951. The floods that resulted killed 41, left 200,000 homeless, and caused \$1 billion in property damage, mainly in Kansas and Missouri. Hurricane winds and resultant flooding along the Eastern Seaboard in August 1955 caused more damage than any series of storms on record in the United States -- 182 lives and up to \$5 billion worth of property were lost.*



4. Although some flooding occurred in all 39 counties of Romania, about one-fourth of the flooding occurred in just two -- Satu Mare, which had more than one-fourth of its total area flooded, and Mures, which had about one-sixth of its area flooded. Roughly one-third of all the houses flooded were in Satu Mare, while another three-tenths were fairly evenly distributed over the counties of Mures, Maramures, Alba, and Sibiu. Mures and Arad counties each accounted for about 40 of the flooded industrial units, including the large thermal powerplant at Ludus. Another 27 of these units were in Harghita county, about 20 each in Alba and Sibiu counties, and about 10 each in Satu Mare, Bistrita-Nasaud, Salaj, Cluj, Ilfov, Neamt, and Hunedoara counties.*

* The data in this paragraph represented the situation as of 20 May 1970.



Flood damage in Satu Mare, a city of 75,000 in northwestern Romania. The Someș River in northwestern Romania caused heavy loss to life and personal property, particularly in the area of Satu Mare. Waters from the Someș flooded 360 towns or villages, 35,000 houses, 40 industrial units, and 400,000 acres of land. At last count, Romanian authorities had recovered 50 bodies from the debris of Satu Mare county alone.

The Mureș/Tarna River, winding through a narrow valley from headwaters in mountains near Gheorghieni, wrought serious destruction along a 250-mile path from Tirgu Mures (a city of 150,000) westward to Arad and beyond. Preliminary reports show damages to 625 towns or villages, 25,000 homes, and 150 industrial units. The Mureș also caused at least 30 deaths, inundated 422,000 acres of land, and damaged a majority of the electric power stations that experienced outages.

Modest flooding occurred along stretches of the Danube River that flows for 688 miles of its 1,739-mile course on the Romanian border with Yugoslavia or within Romania. Several cities on the river reported partial flooding, including Bechet, Turnu Magurele, Oltenita, Giurgiu, Turnu Severin, and Galati—the latter to its port area, shipyard, and one residential area. Some flooding occurred in the Balta, a network of streams, lakes, islands, and marshes between Giurgiu and Braila.

Reconstruction

5. Romania has made an all-out effort to prevent epidemics, to protect industrial and agricultural areas (especially along the Danube), and to repair flood damage. About 13 May the Romanians set up a central flood command under the Ministry of Transportation. Soldiers, students, and workers relieved from their regular jobs were assigned to rescue operations; building new dikes and reinforcing old ones; pumping out water and cleaning up debris; and repairing roads, rail lines, and bridges. Some tens of thousands of construction workers have been taken off their regular projects and brought into the damaged areas. Mechanics have been cleaning and repairing electric motors and other equipment. Many people have been working overtime, including Sundays, both to repair the damage and to make up for production losses. Prisoners in the affected areas were pardoned so that they could join in the effort. The Romanian government has set up a fund of 400 million lei* (less than 0.5% of annual state budget expenditures) to provide emergency relief to those affected by the floods. Workers from plants that were shut down were paid full wages for the month of May. A special account has been set up at the Savings and Loan Bank (CEC) for donations by the population. As of 6 June this account totaled 56.6 million lei.

6. Both Free World and Communist countries have given Romania goods and money for emergency relief. The Red Cross, private individuals and firms, and the United Nations World Food Program (WFP) have been among those making contributions. Goods sent to Romania include medicines, food, clothing, tents, cots, blankets, water purification units, construction materials and equipment, and electric power generators and cable. The largest gift promised so far is from Communist China, which in mid-June agreed to provide \$21 million worth of aid, including machinery, coke, ginned cotton, hides, and foodstuffs. In sharp contrast, known Soviet aid has totaled only about \$55,000.

* *The exchange rate for commodity trade is 6 lei to US \$1. Tourists from hard currency areas receive the equivalent of 18 lei to \$1. The purchasing power of the lei in Romania for industrial goods may range between 10 lei and 20 lei to \$1.*

Impact on the Economy

7. Although many of the statistics on damage are impressive at first glance, only a small part of the economy was directly affected. A preliminary estimate, based in part on Romanian reporting, places the damage to property at about 1% to 2% of total fixed assets, and the present and projected loss in production at 1% to 2% of the national product. It is interesting to note that in many cases the Romanians preface an article on the floods with such descriptions as catastrophic and disastrous but follow this with figures that show little or no serious damage. National product may be expected to grow 4% to 5% in 1970 instead of at a rate of 7% achieved in recent years.

Agriculture

8. The damage to agriculture from the floods and excessive rain is greater than that to any other sector. Some 5.6% of the total arable land was flooded, on about half of which crops were destroyed. In addition, other productive land has suffered from silting, landslides, and standing water. Larger areas of wheat land in the Baragan region have been damaged by standing water than from direct flooding. As of 1 June, the Ministry of Agriculture estimated that areas that could not be worked because of standing water, together with those on which crops had been destroyed and not reseeded, totaled 1.9 million acres (8% of total sown area). About half this area is to be planted to corn, which should be planted no later than 15 June if the crop is to mature; most other crops should be planted no later than 30 June.

9. Although losses of animals were relatively small -- 37,000 head of livestock and 60,000 fowl -- productivity of a much larger number of animals was adversely affected. Local reserves of fodder were lost, pastures inundated, livestock housing destroyed, and nearly 700,000 head of livestock relocated because of flooding. The results will become apparent during coming weeks in reduced weights, lower milk production, and a predisposition of animals to disease. The government on 1 June raised procurement prices for mature meat animals and milk in an

apparent attempt to encourage farmers not to slaughter livestock prematurely in the face of adversities, as well as to strengthen long-run incentives for livestock producers.

10. In addition to losses of crops and livestock from flooding, there were significant losses of food, feed, and seed supplies in the northwestern provinces. An unknown amount of damage or setbacks to irrigation and land reclamation projects occurred in the Baragan region. Furthermore, the excessive spring rains and flooding have caused a considerable loss of nitrogen in the soil. Much more chemical fertilizer than the announced 40,000 tons allocated to areas hit by floods will be needed to compensate fully for nutrient losses.

11. Unquestionably the floods and excessive rains have adversely affected the outlook for 1970 agricultural production, but it is still too early to predict how much. The final outturn of most crops will depend in large part on how soon flooded land can be planted and on growing conditions through September. The only official forecast of 1970 crop production was released 29 May before flooding had stopped and hence before an accurate assessment of flood damage was possible. This forecast put output of the nine major crops, which occupy about 85% of sown area, at 10% on the average below the mediocre results of 1969 -- including shortfalls of 25% and 12.5%, respectively, for wheat and corn. On the basis of current information, the forecast for wheat seems more realistic than that for production of corn. Such a drop will result in the lowest level of wheat output in nearly a decade and could necessitate imports. Prospects for corn production, however, are above average based on a larger planted area, good soil moisture in non-flooded areas, and more normal growing conditions during July and August. The output of sunflowers and soybeans with no better than average yields could set a record because of significant increases in sown areas. Reports by grain brokers that Romania has indicated export commitments for corn and oilseeds will be met also tend to support a more optimistic outlook for production of these commodities than officially released. Conversely, declines in output of sugar beets, potatoes, and early vegetables compared with

last year are likely because of smaller sown areas, seed shortages, or lower yields.

Industry

12. Preliminary data indicate that less than 1% of fixed assets in industry were damaged or destroyed. Loss of industrial materials is not believed to be serious. Estimated production losses so far amount to less than 1% of annual industrial output. Some 270 industrial units were flooded. Of these, 146 were reported to be damaged. Apparently the damage to most units was not severe, because by 6 June all but 15 were reported to be back in full operation.

13. Besides the shortfalls in industrial production caused by inundation and damage to plants, other factors have had a disrupting influence. At the Galati iron and steel combine, which escaped the flood, the workforce has been reduced to furnish manpower for flood control work. In addition, there have been interruptions of power, and supplies of raw materials have been disrupted by the flooding of the Braila-Galati railroad line. Trains to Galati had to be routed via Tecuci, a very roundabout route. A smaller workforce, power and communications breakdowns, and shortages of supplies of raw materials, gas, water, and construction materials have hindered operations at other plants and the reconstruction of damaged plants.

14. There appears to have been little damage to the ferrous and nonferrous metals industries and to the machine building industry. Damage to the electric power, petroleum, chemical, and building materials industries appears to have been light, and most of the flooded plants were back in operation by early June. The Ludus thermal powerplant in Mures county was out for several days. The annual production at Ludus is 5.2 billion kilowatts -- of which about two-fifths goes to Czechoslovakia -- or 17% of total Romanian output in 1969. Some 1,200 miles of power lines were reported damaged, but by 2 June all but about 50 miles of these were usable. The oilfields and refineries in Ploiesti seem to have escaped the floods. A

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very small new refinery in Crisana was reported to have been damaged. Several gasoline depots and stations were flooded, but as of 12 June only the one in Sulina was still out of operation. Seven natural gas lines were out for a short time, but all lines were functioning by 12 June. The Romanians claim that adequate supplies of gasoline for industrial and private consumption were maintained during the whole period. The greatest damage to the chemical industry was at the Tirnaveni Chemical Combine, which suffered from an explosion when the flood waters hit 350 tons of calcium carbide. This plant provides a sizable portion of the country's total output of carbide. The Romanians hope to have two carbide furnaces back in operation by the end of June, a third in July, and the two remaining furnaces in the following months. In the construction materials industry, 17 plants were flooded, and of these, three were still partly or completely out as of early June.

15. The industries that predominate in much of the heavily flooded areas -- light, food processing, and trade industries -- appear to have incurred considerable damage. In light industry, 25 units were flooded. Damage reportedly was especially heavy and resumption of operations difficult at the "1 Septembrie" stove producing factory in Satu Mare, the "Email Rosu" enamelware plant and the "Tirnava" textile mill in Medias, and the "6 Martie" weaving mill in Sighisoara. Operations in another 34 units were interrupted because of a lack of raw materials, power, gas, and water, or as a result of the diversion of manpower to flood control and repair activities. The majority of the food industry units of the counties of Mures, Satu Mare, Sibiu, Cluj, Arad, Braila, and Tulcea reportedly suffered damage from the floods. The "11 Iunie" canned food factory in Dej and the milk factory in Ludus were completely inundated. Serious damage was incurred at the sugar factory and cattle fattening plant in Ludus; the canned food and meat products factory and the "Vinalcool" warehouse in Medias; the milk products factories in Sighisoara and Simleul Silvaniei; the wine storage facilities in Satu Mare, Cotnari, and Nanesti; and the distillery in Ilia. By 9 June, all but four of the 46 units affected by the flood were back in operation.

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16. The timber processing industry may have been the hardest hit, largely because of the heavy damage to lumbering facilities, which are largely in mountainous areas. Some 1,500 miles of forest roads and 160 miles of forest railroads reportedly were destroyed, and 1,100 miles of hauling installations and 146 bridges were damaged. Some 216 exploitation units, 49 factories, and 12 mechanization sectors reportedly were affected. The Romanians claim small inventory losses of wood and wood products. They are apparently concerned over the recovery of the timber industry because rebuilding of structures damaged by the flood has already reduced stocks of wood and a good deal of additional rebuilding remains to be done.

Construction

17. Despite the displacement of men, equipment, and materials from construction sites to flood control work, the Ministry of the Construction Industry claimed in early June that activity had been at about 98% of the level expected under normal conditions. The annual plan of the ministry reportedly was 39% completed by the end of May. Thus, by the end of May, construction work apparently was pretty much on schedule. The Ministry further claims that losses of building materials -- cement silos, timber, installation materials -- have been small, and as of 6 June foresaw no interruption of production as a result of shortages of construction materials.

Transportation and Communications

18. Although much of the transportation network in the northwest and along the Danube was affected by the floods, most service was restored by mid-June. At the height of the flooding, about 5% to 6% of the road and rail networks were out of operation. Many bridges were unusable. The counties of Bistrita-Nasaud, Mures, Satu Mare, Alba, and Salaj suffered especially serious damage. There was a temporary disruption of international traffic on the Danube and probably also of international rail traffic. About 1% of the fixed assets in the transportation sector were damaged or destroyed. By 2 June, most of the rail lines were repaired,

but several railroad bridges were still unusable. The Romanians expected that these would be repaired by 16 June. Many of the flooded roads were back in use by early June. They also hoped that nearly normal highway traffic could be resumed by 30 June. Work on many of the damaged and destroyed highway bridges was to be completed by 1 August, with the rest of the work to be completed by the end of the year. The Romanians claim that the efforts expended to repair damage to the transportation network will not interfere with the achievement of 1970 plans for highway and railroad construction.

19. Floodwaters caused at least temporary outages along 500 miles of Romania's open wireline network, otherwise the telecommunications system as a whole came through unscathed. No apparent damage occurred either to higher capacity transmission media or to the country's communications exchanges, even in the badly stricken towns of Tirgu Mures and Satu Mare.

Personal Consumption

20. The full impact of the flooding on food supplies for the rest of the year cannot yet be determined. Temporary disruption in food supplies in the flooded areas was unavoidable. The Romanian diet is likely to show the effect of the flood as a result of expected shortfalls in output of fruits, vegetables, and meat; these commodities already were in short supply before the floods. Supplies have been supplemented to some extent by food sent as part of the emergency relief aid shipments from other countries. The *Toronto Daily Star* of 6 June reported that Canada has offered \$7.5 million worth of wheat and flour to Romanian flood victims. This is one of the largest gifts to date -- except for that of the Communist Chinese mentioned in paragraph 6 -- and possibly the largest contribution of foodstuffs. Under its pledge to WFP, the United States is contributing flour, skimmed milk powder, and vegetable oil estimated to be worth \$2.4 million. Furthermore, President Nixon has approved a total of \$8.5 million for relief, which includes PL-480, Title II emergency aid funds for oats, barley, and dried milk; Commodity Credit Corporation credits for seeds; and emergency funds for animal vaccines,

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seeds, and the like. Even with emergency food aid, the consumer can expect shortages and higher prices for many foods. Consumers already have been faced with higher retail prices for beef, pork, milk, and some other livestock products since 1 June as a result of the increased payments to farmers for some livestock and livestock products. If the Romanian government maintains export levels of food-stuffs -- meat, vegetables, and grain -- it will be largely at the expense of domestic consumption.

21. Many people in the most heavily flooded areas, especially Satu Mare, are without housing. Some are living temporarily in tents (many supplied by foreign countries) until their houses can be repaired or new ones made available. The total number of dwelling units damaged or destroyed -- about 41,000 -- however, represents less than 1% of the total housing stock in Romania and about one-fourth the number of units built in a year. The government plans to build free of charge for the flood victims, 5,000 houses above plan this year. To others the government has promised payments -- which include the insurance coverage -- of up to 20,000 lei (15,000 lei for farm homes) for those whose homes have been destroyed, up to 6,000 lei for those whose homes have been damaged, and up to 5,000 lei for rebuilding outbuildings. In addition, up to 5,000 lei will be provided for new furnishings and other personal effects. In many cases these payments will nowhere near cover the expense of repair, rebuilding, and reequipment. Investments in apartments constructed by the state average about 60,000 lei per unit. Although the cost of building a farm home is probably much less, the maximum of 15,000 lei is inadequate.

Balance of Payments

22. The effect of the floods on Romania's balance of payments may be significant. The damage will create some requirements for supplemental imports and will adversely affect Romania's ability to export. These effects, although small relative to Romania's total trade, will force Romania to seek financial assistance. The Romanians presumably will have to rely on imports to replace some industrial materials and perhaps some parts for damaged

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equipment. Furthermore, if the grain and fodder crops fall well below normal, the Romanians will have to import wheat and perhaps other grains. Corn exports may be smaller than usual, although the Romanians have declared they will meet all export commitments. Another factor is how well the livestock sector, an important source of hard currency earnings, weathers the flooding and its aftermath. The prospect for exports will also be affected by the need for recovery in the timber processing industry and the increased domestic needs for lumber. These consequences of the floods will adversely affect the balance of trade and payments with Western countries, the probable source of supplementary imports and the main market for corn, meat and other animal products, and wood. The Romanians had hoped to achieve an export surplus in total trade in 1970 for the first time since 1965 and to reduce sharply the usual deficit with the Free World; these plans will not be achieved.

Romanian-Soviet Relations

23. The floods no doubt have strengthened the solidarity of the Romanian people behind the leaders' policy of national independence, especially vis-a-vis the USSR. Because the floods appear not to have seriously affected the Romanian economy, they have not given the USSR any additional leverage against the Romanians. Romania will require supplementary imports beyond the emergency relief already extended. The Romanians probably will not look for help to the USSR -- which provided only token emergency relief. Instead, they will turn to the West for increased imports on credit and for assistance in easing the additional strain on their balance of payments. Governments and banks in Western Europe probably will be willing to oblige.

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[redacted] The Romanians also have inquired in the United States about buying some items -- notably, meat, seed, and railroad equipment. It is unlikely, however, except for additional credits from the Commodity Credit Corporation for such items as seed and grain, that the Romanians can obtain financing from the United States which would be competitive with financing from Western Europe.

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Conclusions

25. The worst floods in Romanian history began on 12 May 1970 and continued into the second week of June. All 39 counties were flooded to some extent, but the heaviest inundation occurred along the path of the rivers in the northwest. Preliminary estimates indicate that damage to the economy was localized and amounted to perhaps only 1% to 2% of the national product. The Romanian people will experience some short-run deterioration in food supplies and shortages in consumer durables.

26. The impact on foreign trade probably will be significant. In particular, the loss of some agricultural exports and the increased requirements for imports will add to Romanian balance-of-payments problems. Both Free World and Communist countries have supplied emergency relief, with Communist China being the single largest donor. In addition to emergency relief, the Romanians will have to import materials and equipment to assist in recovery from flood damage. They will turn primarily to Western Europe for these imports and for the financing necessary to cover their worsened balance-of-payments position. West Germany has already postponed repayment of the Romanian debt due in the next year, and has agreed to keep credit lines open.

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